

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
 United States Patent and Trademark
 Office
 Box PCT
 Washington, D.C.20231
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 18 April 2000 (18.04.00)	
International application No. PCT/GB99/02803	Applicant's or agent's file reference CI 1416 PCT
International filing date (day/month/year) 25 August 1999 (25.08.99)	Priority date (day/month/year) 28 August 1998 (28.08.98)
Applicant ELSONE, Amanda, Maria et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

15 March 2000 (15.03.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer S. Mafla
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

CLAIMS

1. A sensor for detecting food spoilage products or the opening or compromise of packaging, comprising a metal co-ordinated complex immobilised in or on a substrate,
5 which complex is capable of releasing a detectable component by the preferential binding of a gaseous substance to the metal of said complex.
2. A sensor according to claim 1, wherein the gaseous substance is a sulphur- and/or nitrogen- and/or alcohol- and/or carbonyl- and/or phosphorus-containing compound.
- 10 3. A sensor according to claim 1 or 2, wherein the metal complex is a metal complexed with a chromophore or fluorophore.
4. A sensor according to claim 1, 2 or 3, wherein the metal complex is immobilised
15 in a film or incorporated into or into part of a packaging material.
5. A sensor according to claim 4, wherein said film is applied to a label retained inside packaging or to the interior surface of a portion of a package.
- 20 6. A sensor according to any one of the preceding claims, wherein the metal complex is a palladium-fluorophore complex.
7. A sensor according to claim 6, wherein the complex is palladium-Fluorexon.
- 25 8. A sensor substantially as hereinbefore described.
9. A method of detecting the degradation of the contents of a package, or the opening or compromise of a package, comprising inserting into or applying to said package or incorporating into a portion of the interior surface of said package, a metal co-ordinated
30 complex which is capable of releasing a detectable component by preferential binding of a gaseous substance to the metal atom(s) of said complex.

10. A method according to claim 9, wherein food spoilage is detected by the release of a fluorophore or a chromophore from a metal complex.

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference CI 1416 PCT	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) FOR FURTHER ACTION	
International application No. PCT/GB99/02803	International filing date (day/month/year) 25/08/1999	Priority date (day/month/year) 28/08/1998
International Patent Classification (IPC) or national classification and IPC G01N31/22		
Applicant JOHNSON MATTHEY PUBLIC LIMITED COMPANY et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 15/03/2000	Date of completion of this report 07.12.00
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Oechsner de Coninck Telephone No. +49 89 2399 2379 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/02803

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*

Description, pages:

1-7 as originally filed

Claims, No.:

1-10 as received on 30/09/2000 with letter of 26/09/2000

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/02803

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-6,8-10
Inventive step (IS)	Yes:	Claims	
	No:	Claims	7
Industrial applicability (IA)	Yes:	Claims	1-10
	No:	Claims	

2. Citations and explanations **see separate sheet**

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Re It m V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

V.1. Art.33 PCT: Lack of novelty of claims 1-6,8,9,10:

Claim 1 concerns a product ("sensor") for a particular use ("for detecting food spoilage products within food packaging or the opening or compromise of packaging"). However, if a sensor known from the prior art is in fact suitable for the stated use, though it has never been described for that use, it would deprive the claim of novelty.

The sensor according to claim 1 is defined in the following terms: "comprising a metal co-ordinated complex immobilised in or on a substrate, which complex is capable of releasing a detectable component by the preferential binding of a gaseous substance to the metal of said complex". The definition of the composition of such sensor, in particular, the definition of the suitable complex, is very broad and, in addition, is defined in terms of the result to be achieved (see, also Item VIII).

Since sensors comprising metal coordinated complexes falling under the definition of present claim 1 are derivable for example from D3 which also deals with food industry (claims 1-7, part 2 in cols.5 and 6), D4 (col.1, lines 3,4, line 54 to col.2, line 34, claims 1,5), D5 (p.442, introduction part) and from "Int.J.Environ.Chem.(1971),1(2),99-111" cited by the applicant p.1, lines 24-26, and since no reasons could be found why these sensors are not suitable for food detecting food spoilage within food packaging, the subject matter of claim 1 is not novel over these documents.

In the light of these documents, the subject matter of claims 2-6,8 is also not new.

V.2. Art.33(2) PCT: Lack of novelty of claims 9 and 10:

The use of the sensors described by the prior art documents cited above in the food industry for detecting food spoilage within packaging or the opening or compromise of packaging is not surprising since the gases liberated by spoiled food are the same than those already detected by the sensors described in the cited prior art. D3 itself deals with the same technical field of detecting food spoilage and also describes a process as

claimed in claims 9 and 10 (see, claims 1-7).

Hence the method according to present claims 9,10 is not novel over D3.

V.3. Art.33(3) PCT: Lack of inventive step of claim 7:

It does not arise from the description that the specific complex defined by claim 7 shows a surprising technical effect. D3 discloses complexes containing fluorophores similar to those presently claimed (see, col.6, lines 6-9) Therefore, the features of claim 7 do not involve an inventive step.

R Item VII

Certain defects in the international application

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1-D4 are not mentioned in the description, nor are these documents identified therein.

Re Item VIII

Certain observations on the international application

VIII.1. Claim 8 is unclear and as such should be deleted.

VIII.2. The part of the description relating to "Fluorescence testing" gives reference to Figures 1-5. However, no Figures were filed.

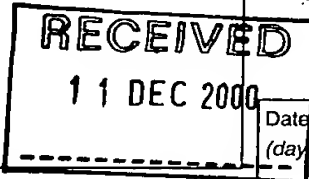
VIII.3. Claims 1 and 9 do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claims attempt to define the subject-matter in terms of the result to be achieved, i.e., in the terms "which complex is capable of releasing...said complex", which merely amounts to a statement of the underlying problem. The technical features necessary for achieving this result are missing.

09/7639815

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

WISHART, I.
JOHNSON MATTHEY PUBLIC LIMITED CO.
Technology Centre
Blounts Court
Sonning Common
Reading RG4 9NH
GRANDE BRETAGNE



PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year)

07.12.00

Applicant's or agent's file reference
CI 1416 PCT

IMPORTANT NOTIFICATION

International application No.
PCT/GB99/02803

International filing date (day/month/year)
25/08/1999

Priority date (day/month/year)
28/08/1998

Applicant

JOHNSON MATTHEY PUBLIC LIMITED COMPANY et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.


4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

 European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Weber, R

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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference CI 1416 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

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	No: Claims	

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CLAIMS

1. A sensor for detecting food spoilage products within food packaging or the opening or compromise of packaging, comprising a metal co-ordinated complex immobilised in or on a substrate, which complex is capable of releasing a detectable component by the preferential binding of a gaseous substance to the metal of said complex.
2. A sensor according to claim 1, wherein the gaseous substance is a sulphur- and/or nitrogen- and/or alcohol- and/or carbonyl- and/or phosphorus-containing compound.
3. A sensor according to claim 1 or 2, wherein the metal complex is a metal complexed with a chromophore or fluorophore.
4. A sensor according to claim 1, 2 or 3, wherein the metal complex is immobilised in a film or incorporated into or into part of a packaging material.
5. A sensor according to claim 4, wherein said film is applied to a label retained inside packaging or to the interior surface of a portion of a package.
6. A sensor according to any one of the preceding claims, wherein the metal complex is a palladium-fluorophore complex.
7. A sensor according to claim 6, wherein the complex is palladium-Fluorexon.
8. A sensor substantially as hereinbefore described.
9. A method of detecting the degradation of the contents of food packaging, or the opening or compromise of a package, comprising inserting into or applying to said package or incorporating into a portion of the interior surface of said package, a metal co-ordinated complex which is capable of releasing a detectable component by preferential binding of a gaseous substance to the metal atom(s) of said complex.

10. A method according to claim 9, wherein food spoilage is detected by the release of a fluorophore or a chromophore from a metal complex.